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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MIGGINS, MICHAEL C

ART UNIT

PAPER NUMBER

1772

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/923,991

Applicant(s)

SREBOFF

Examiner

Michael C. Miggins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 25-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17 and 21-24 is/are rejected.
- 7) ☒ Claim(s) 16 and 18-20 is/are objected to.
- 8) ☒ Claim(s) 1-44 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 3.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-24, drawn to a trauma mitigation device, classified in class 428, subclass 68.
 - II. Claims 25-37, drawn to a vehicle footwell and a knee bolster, classified in class 280, subclass 748.
 - III. Claims 38-44, drawn to a trauma mitigation composition, classified in class 521, subclass 59.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a seat cushion, a bed cushion, or a bumper and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the

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examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the trauma mitigation device, group I, does not require the inclusion of macro-sphere particles recited in group II. The subcombination has separate utility such as a fluid cushion or by itself as a bumper for a vehicle.

Inventions III and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a fluid cushion or a bumper for a vehicle and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the

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examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, the search required for Group I is not required for Group III, and the search required for Group II is not required for Group III, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with David Jenkins on 3/7/03 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 33-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Jordan (U.S. Patent No. 3,574,379).

Jordan teaches a trauma mitigation device (abstract) comprising an enclosure (16 from Figs. 3 and 5-6, column 2, lines 14-51) having a fluid impervious barrier (abstract), a crushable matrix disposed within said enclosure (30 from Figs. 3 and 5-6, column 2, lines 14-51), and a viscous fluid disposed within said enclosure (31 from Figs. 3 and 5-6, column 2, lines 14-51), wherein said enclosure is formed from a flexible material selected from the group consisting of a polymeric film, fully-reticulated foam, rubberized woven fabric, rubberized non-woven fabric, elastomeric woven material, or elastomeric non-woven material (see column 2, lines 14-37, since vinyl is a polymeric film) (applies to instant claims 1 and 21).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379).

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Jordan teaches that the enclosure material (16 and 18 from Fig. 6) is formed of a pair of parallel barriers (since the enclosure material, which is vinyl, is barrier towards the fluid 31 from Fig. 6) (applies to instant claim 6).

Jordan discloses the claimed invention except for the physical properties recited in the claims with regards to viscosity of the fluid material and the thickness of the enclosure material recited in claims 4 and 23. However, Jordan teaches that the body (30 from Figs. 3 and 5-6) is saturated with a liquid (31 from Figs. 3 and 5-6) of any desired viscosity and it is well within the purview of one of ordinary skill in the art to adjust the thickness of the polymeric film depending on the desired impact resistance. Thus one of ordinary skill in the art would have recognized that the viscosity of the fluid material and the thickness of the enclosure material would be readily determined through routine experimentation depending on the desired end results absent some showing of unexpected results. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a trauma mitigation device with the recited viscosity for the fluid material and thickness for the enclosure material in order to provide improved energy absorption properties, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art (applies to instant claims 4 and 23). *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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11. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379) in view of Courtney (WO 97/25551).

Jordan discloses the claimed invention except for the physical properties recited in the claims with regards to viscosity of the fluid material recited in claim 4. However, Jordan teaches that the body (30 from Figs. 3 and 5-6) is saturated with a liquid (31 from Figs. 3 and 5-6) of any desired viscosity. Thus one of ordinary skill in the art would have recognized that the viscosity of the fluid material would be readily determined through routine experimentation depending on the desired end results absent some showing of unexpected results. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a trauma mitigation device with the recited viscosity for the fluid material in order to provide improved energy absorption properties, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art (applies to instant claim 3). *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Jordan discloses applicant's invention substantially as claimed. However, Jordan fails to disclose that the viscous fluid includes macro-sphere particles

Courtney teaches a viscous fluid including macro-sphere particles containing a gas or not containing a gas dispersed in a fluid (abstract, page 2, first full paragraph, page 5, third full paragraph) in a bumper for an automobile (page 17, first and second full paragraphs) for the purpose of providing improved impact resistance.

Therefore it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to have provided a viscous fluid containing macro-spheres in the trauma mitigation device of Jordan in order to provide improved impact resistance as taught or suggested by Courtney.

Jordan and Courtney disclose the claimed invention except for the physical properties recited in the claims with regards to diameter of the macro-spheres recited in claim 2. However, Courtney teaches macro-spheres that are of the millimeter to centimeter scale. Thus one of ordinary skill in the art would have recognized that the diameter of the macro-spheres would be readily determined through routine experimentation depending on the desired end results absent some showing of unexpected results. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a trauma mitigation device with the diameter for the macro-spheres in order to provide improved impact resistance, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art (applies to instant claim 2). *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

12. Claims 5-6, 11, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379) in view of Moore (U.S. Patent No. 3,782,768).

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Jordan teaches a crushable matrix (as illustrated in the 102(b) rejection above) that includes a supporting layer (25 from Figs. 3 and 5-6, column 2, lines 14-37) disposed adjacent to an enclosure (16 and 18 from Figs. 3 and 5-6) (applies to instant claim 6). Jordan teaches that said enclosure is formed from a flexible material selected from the group consisting of a polymeric film, fully-reticulated foam, rubberized woven fabric, rubberized non-woven fabric, elastomeric woven material, or elastomeric non-woven material (see column 2, lines 14-37, since vinyl is a polymeric film) (applies to instant claim 11).

Jordan discloses the claimed invention except for the physical properties recited in the claims with regards the thickness of the enclosure material recited in claim 13. However, it is well within the purview of one of ordinary skill in the art to adjust the thickness of the polymeric film depending on the desired impact resistance. Thus one of ordinary skill in the art would have recognized that the thickness of the enclosure material would be readily determined through routine experimentation depending on the desired end results absent some showing of unexpected results. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a trauma mitigation device with the recited thickness for the enclosure material in order to provide improved energy absorption properties, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art (applies to instant claim 13). *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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Jordan discloses applicant's invention substantially as claimed. However, Jordan fails to disclose a crushable matrix which has a plurality of matrix elements selected from the group consisting of cylinders, hemispheres or pyramids, wherein the crushable matrix includes a plurality of hemispheres, and said hemispheres disposed in pairs connected at the convexities.

Moore teaches a crushable matrix (11 from Fig. 1 which is foam, column 3, lines 48-68) which has a plurality of matrix elements selected from the group consisting of cylinders, hemispheres or pyramids (see Fig. 1 where hemispherical elements are present), wherein the crushable matrix includes a plurality of hemispheres, and said hemispheres disposed in pairs connected at the convexities (column 2, lines 33-68, column 3, lines 15-68) (applies to instant claims 5 and 15) in a bumper for cars (abstract) for the purpose of providing improved impact resistance.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a crushable matrix which has a plurality of matrix elements selected from the group consisting of cylinders, hemispheres or pyramids, wherein the crushable matrix includes a plurality of hemispheres, and said hemispheres disposed in pairs connected at the convexities in the trauma mitigation device of Jordan in order to provide improved impact resistance as taught or suggested by Moore.

Jordan and Moore disclose the claimed invention except for inclusion of pyramids which are disposed in pairs connected at the apexes recited in claim 17. However, Moore teaches the inclusion of a plurality of hemispheres disposed in pairs connected

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at the convexities as just described above. Furthermore, Moore teaches that these hemispheres can be of any desired shape (column 3, lines 30-42). Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided a trauma mitigation device including pyramids which are disposed in pairs connected at the apexes, since it has been held that a change in shape involves only routine skill in the art (applies to instant claim 17). *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

13. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379) in view of Moore (U.S. Patent No. 3,782,768), as applied to instant claims 5-6, 11, 13, 15 and 17 above, and further in view of Jensen et al. (U.S. Patent No. 4,148,505).

Jordan discloses applicant's invention substantially as claimed. However, Jordan fails to disclose a supporting layer which is metal (or ductile metal) and formed into a crushable shape, wherein said crushable shape is corrugated sheet, wherein said crushable shape is a plurality of hexagonal cells.

Jensen et al. teaches a 2 stage bumper (see Fig. 1) wherein stage 1 is a crushable foam and stage 2 is a support for stage 1 located behind stage 1. Jensen et al. also teach a bulkhead (22 from Fig. 17), located behind stage 1, which is also a support for stage 1 (column 7, lines 5-68). The stage 2 support can be a ductile metal such as aluminum or a honeycomb material (column 7, lines 5-68). The bulkhead is a

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corrugated metal layer which supports stage 1 (column 7, lines 40-68). The bumper structure of Jensen et al. provides improved impact resistance.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a supporting layer which is metal (or ductile metal) and formed into a crushable shape, wherein said crushable shape is corrugated sheet, wherein said crushable shape is a plurality of hexagonal cells in the trauma mitigation device (or bumper) of Jordan in order to provide improved impact resistance as taught or suggested by Jensen et al..

14. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379) in view of Sobel (U.S. Patent No. 3,610,609).

Jordan discloses applicant's invention substantially as claimed. However, Jordan fails to disclose an enclosure having at least one accordion pleat along an edge of said enclosure.

Sobel teaches an enclosure having at least one accordion pleat along an edge of said enclosure (103a and 103b from Fig. 2, column 4, lines 45-55) in a car bumper guard (abstract) for the purpose of providing improved impact resistance.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided an enclosure having at least one accordion pleat along an edge of said enclosure in the trauma mitigation device of Jordan in order to provide improved impact resistance as taught or suggested by Sobel.

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15. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379) in view of Moore (U.S. Patent No. 3,782,768), as applied to instant claims 5-6, 11, 13, 15 and 17 above, and further in view of Sobel (U.S. Patent No. 3,610,609).

Jordan discloses applicant's invention substantially as claimed. However, Jordan fails to disclose an enclosure having at least one accordion pleat along an edge of said enclosure.

Sobel teaches an enclosure having at least one accordion pleat along an edge of said enclosure (103a and 103b from Fig. 2, column 4, lines 45-55) in a car bumper guard (abstract) for the purpose of providing improved impact resistance.

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided an enclosure having at least one accordion pleat along an edge of said enclosure in the trauma mitigation device of Jordan in order to provide improved impact resistance as taught or suggested by Sobel.

16. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379) in view of Moore (U.S. Patent No. 3,782,768), as applied to instant claims 5-6, 11, 13, 15 and 17 above, and further in view of Weller (U.S. Patent No. 5,141,279).

Jordan discloses applicant's invention substantially as claimed. However, Jordan fails to disclose an enclosure further including a layer of foam connected to a pressurized air source.

Weller teaches an enclosure further including a layer of foam connected to a pressurized air source (Figs. 4a, 5 and 9, abstract, column 2, line 53 through column 3, line 57) in a side impact protection apparatus for the purpose of providing improved impact resistance.

Therefore it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to have provided an enclosure further including a layer of foam connected to a pressurized air source in the trauma mitigation device of Jordan in order to provide improved impact resistance as taught or suggested by Weller.

17. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan (U.S. Patent No. 3,574,379) in view of Weller (U.S. Patent No. 5,141,279).

Jordan discloses applicant's invention substantially as claimed. However, Jordan fails to disclose an enclosure further including a layer of foam connected to a pressurized air source.

Weller teaches an enclosure further including a layer of foam connected to a pressurized air source (Figs. 4a, 5 and 9, abstract, column 2, line 53 through column 3, line 57) in a side impact protection apparatus for the purpose of providing improved impact resistance.

Therefore it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to have provided an enclosure further including a layer of foam connected to a pressurized air source in the trauma mitigation device of

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Jordan in order to provide improved impact resistance as taught or suggested by Weller.

Allowable Subject Matter

18. Claims 16 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With regards to claims 16 and 18-20, the primary reason for indication of allowable subject matter is applicant's recited structure which includes a plurality of hemispheres wherein said viscous fluid is inside and outside of said hemispheres (claim 16) and wherein said crushable matrix includes a plurality of pyramids wherein said viscous fluid is disposed outside each said pyramid (claim 18) and applicant's recited pyramidal structure which abuts a supporting layer (claim 19) and the pyramidal structure including arms extending from the base of each pyramid to the supporting layer (claim 20). Such structures are novel because the prior art doesn't teach said structures. Moreover said structures are unobvious because one of ordinary skill in the art would not have been motivated to provide said structures to arrive at applicant's claimed invention which is improved in impact resistance.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Butler (U.S. Patent No. 4,586,738) is cited as relevant prior art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Miggins whose telephone number is (703) 305-0915. The examiner can normally be reached on Monday-Friday; 1:30-10:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pyon Harold can be reached on (703) 308-4251. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

MCM *hcm*
March 24, 2003

[Signature]
HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772 *3/24/03*